

1

00:00:06,166 --> 00:00:08,566

NARRATOR: YOU'RE
HEADED FOR THE SKY.

2

00:00:08,666 --> 00:00:12,100

MAYBE YOU'RE GOING
TO GO SEE FAMILY...

3

00:00:12,200 --> 00:00:15,133

OR SETTING OFF
ON A BUSINESS TRIP.

4

00:00:16,800 --> 00:00:19,800

BUT FROM THE MOMENT
YOU PULL UP TO THE AIRPORT,

5

00:00:19,900 --> 00:00:24,233

YOU STEP INTO A COMPLEX WORLD
THAT YOU RARELY GET TO SEE...

6

00:00:24,333 --> 00:00:26,433

MAN ON RADIO:
NORMAL AIR SPEED, AMERICAN 879.

7

00:00:26,533 --> 00:00:27,800

[INDISTINCT]

5-2.

8

00:00:27,900 --> 00:00:31,300

NARRATOR: BECAUSE GETTING YOU
OFF THE GROUND TAKES FAR MORE

9

00:00:31,400 --> 00:00:33,500

THAN JUST A TICKET.

10

00:00:33,600 --> 00:00:38,000

IT TAKES HUNDRED-MILLION-DOLLAR
HIDDEN RAILWAYS

11

00:00:38,100 --> 00:00:41,133

TO GET YOUR LUGGAGE
TO THE PLANE,

12

00:00:41,233 --> 00:00:43,966

ENGINEERS WORKING
ROUND THE CLOCK

13

00:00:44,066 --> 00:00:46,600
TO MAKE SURE
YOUR FLIGHT'S AIRWORTHY...

14
00:00:48,166 --> 00:00:52,566
AN ARMY OF CHEFS
TO PREPARE YOUR FOOD,

15
00:00:52,666 --> 00:00:56,366
VAST INDUSTRIES
CONSTRUCTING THE JETS

16
00:00:56,466 --> 00:00:58,900
THAT CARRY US AROUND THE WORLD,

17
00:00:59,000 --> 00:01:00,966
AND ALL OF THIS HAPPENS

18
00:01:01,066 --> 00:01:05,133
EVEN BEFORE THE WHEELS
LEAVE THE GROUND.

19
00:01:05,233 --> 00:01:07,300
BUT ONCE YOU'RE AIRBORNE,

20
00:01:07,400 --> 00:01:09,800
YOU'VE JOINED THE MILLION PEOPLE

21
00:01:09,900 --> 00:01:12,800
WHO ARE FLYING AT ANY ONE TIME

22
00:01:12,900 --> 00:01:16,300
AND WHO ARE UP THERE
RIGHT NOW.

23
00:01:16,400 --> 00:01:20,800
YOU'VE BECOME PART
OF THE "CITY IN THE SKY."

24
00:01:20,900 --> 00:01:25,333
THIS CITY STRADDLES NOT JUST
COUNTRIES, BUT CONTINENTS.

25
00:01:26,733 --> 00:01:29,633
IT'S BUILT OUT OF
THE 100,000 FLIGHTS

26

00:01:29,733 --> 00:01:34,100
THAT CRISSCROSS THE PLANET
EVERY SINGLE DAY.

27
00:01:34,200 --> 00:01:37,633
IT'S AN INCREDIBLE FEAT
OF ENGINEERING...

28
00:01:39,033 --> 00:01:43,433
DEPENDENT UPON ADVANCED
TECHNOLOGY AND GLOBAL NETWORKS,

29
00:01:43,533 --> 00:01:48,433
A HIDDEN WORLD RARELY
GLIMPSED BY OUTSIDERS,

30
00:01:48,533 --> 00:01:50,966
UNTIL NOW.

31
00:02:00,033 --> 00:02:03,000
NARRATOR: IF YOU WANT TO VISIT
THE CITY IN THE SKY,

32
00:02:03,100 --> 00:02:06,166
THE FIRST STEP INVOLVES
GETTING OFF THE GROUND.

33
00:02:06,266 --> 00:02:08,166
[PERSON WHISTLING A TUNE]

34
00:02:08,266 --> 00:02:10,933
NARRATOR: YOU KNOW THE DRILL...

35
00:02:11,033 --> 00:02:13,200
ARRIVE AT CHECK-IN....

36
00:02:11,033 --> 00:02:13,200
[WHISTLING CONTINUES]

37
00:02:13,300 --> 00:02:15,700
NARRATOR: TAG YOUR BAG...

38
00:02:15,800 --> 00:02:17,933
PRINT YOUR BOARDING PASS...

39
00:02:18,033 --> 00:02:20,400
AND HEAD TO SECURITY.

40
00:02:22,466 --> 00:02:25,566
MADE IT THROUGH.

41
00:02:25,666 --> 00:02:28,200
MAYBE DO A LITTLE SHOPPING.

42
00:02:29,966 --> 00:02:32,366
TIME TO FIND THE GATE...

43
00:02:29,966 --> 00:02:32,366
[BEEP]

44
00:02:32,466 --> 00:02:34,866
BOARD YOUR PLANE.

45
00:02:34,966 --> 00:02:37,066
READY FOR TAKEOFF...

46
00:02:38,500 --> 00:02:41,400
AND THAT'S ALL THERE IS TO IT.

47
00:02:41,500 --> 00:02:44,066
BUT IF YOU GO BACK
TO THE BEGINNING

48
00:02:44,166 --> 00:02:46,733
AND LOOK AT EACH STEP
THAT GOT YOU HERE,

49
00:02:46,833 --> 00:02:50,600
YOU'LL FIND THERE'S MUCH MORE
TO IT THAN MEETS THE EYE.

50
00:02:57,533 --> 00:02:59,933
IT ALL STARTS WITH GETTING YOU

51
00:03:00,033 --> 00:03:02,233
AND YOUR LUGGAGE
THROUGH THE AIRPORT.

52
00:03:06,300 --> 00:03:09,700
BUT MODERN MEGA AIRPORTS
HAVE NOW GOTTEN SO BIG,

53
00:03:09,800 --> 00:03:13,233

THAT'S NOT ALWAYS
AS EASY AS IT SOUNDS.

54
00:03:16,300 --> 00:03:19,666
HARTSFIELD-JACKSON AIRPORT
IN ATLANTA, GEORGIA,

55
00:03:19,766 --> 00:03:22,300
IS THE BUSIEST OF THEM ALL.

56
00:03:24,366 --> 00:03:26,666
IT'S WITHIN 3 HOURS' FLIGHT TIME

57
00:03:26,766 --> 00:03:29,400
OF 80% OF THE U.S. POPULATION.

58
00:03:30,966 --> 00:03:34,933
OVER A HUNDRED MILLION PEOPLE
A YEAR MOVE THROUGH HERE.

59
00:03:37,500 --> 00:03:40,200
ON THANKSGIVING,
PASSENGER NUMBERS SURGE

60
00:03:40,300 --> 00:03:43,000
AS AROUND 300,000 PEOPLE
HURRY HOME

61
00:03:43,100 --> 00:03:45,833
TO REUNITE WITH
THEIR LOVED ONES.

62
00:03:48,233 --> 00:03:50,633
TO STOP THE TERMINALS
FROM CLOGGING UP,

63
00:03:50,733 --> 00:03:55,633
THE AIRPORT NEEDS TO MAINTAIN
CONSTANT PASSENGER FLOW

64
00:03:55,733 --> 00:03:59,000
FROM CHECK-IN
TO DEPARTURE GATE.

65
00:04:01,033 --> 00:04:05,000
THE KEY TO KEEPING YOU
AND EVERYBODY ELSE MOVING

66
00:04:05,100 --> 00:04:06,566
IS DESIGN.

67
00:04:08,133 --> 00:04:11,033
AIRPORTS ARE PROBABLY
THE MOST ENGINEERED PLACES

68
00:04:11,133 --> 00:04:14,033
WE ARE EVER LIKELY
TO SET FOOT IN.

69
00:04:14,133 --> 00:04:16,200
ALTHOUGH WE DON'T NOTICE
MOST OF IT,

70
00:04:16,300 --> 00:04:19,366
EVERYTHING FROM SIGNS,
WALKWAYS, SEATS,

71
00:04:19,466 --> 00:04:21,866
AND CHECK-IN DESKS
HAVE BEEN DESIGNED

72
00:04:21,966 --> 00:04:23,700
TO CONTROL PASSENGER MOVEMENTS.

73
00:04:25,266 --> 00:04:28,666
AIRPORT DESIGN GURU
JIM HARDING HELPED PLAN

74
00:04:28,766 --> 00:04:31,566
THE LAYOUT OF ATLANTA'S
INTERNATIONAL TERMINAL.

75
00:04:33,133 --> 00:04:35,233
JIM: WE HAVE
A SET OF VISUAL CUES

76
00:04:35,333 --> 00:04:37,233
THAT NATURALLY LEAD
AND GUIDE YOU

77
00:04:37,333 --> 00:04:40,066
THROUGH THE BIG OPEN SPACE,
AND IT'S A BIG PART OF

78
00:04:40,166 --> 00:04:42,566

YOUR JOURNEY SEGMENT, CHECKING
IN, GETTING ON YOUR PLANE.

79

00:04:42,666 --> 00:04:44,800
SO WHAT YOU HAVE HERE,
YOU HAVE LIGHTING

80

00:04:44,900 --> 00:04:46,966
THAT GOES UP AND OVER AND DOWN.

81

00:04:47,066 --> 00:04:49,466
YOU HAVE FLOORING
THAT PULLS YOU IN AND THROUGH,

82

00:04:49,566 --> 00:04:52,300
AND THE TWO COME TOGETHER,
THEN POINT YOU TO THE PLANE

83

00:04:52,400 --> 00:04:54,000
THAT YOU SEE THROUGH THE GLASS.

84

00:04:54,100 --> 00:04:56,833
SO THIS DESIGN,
IT'S VERY CAREFULLY THOUGHT OUT,

85

00:04:56,933 --> 00:04:59,333
MAKING THAT CUSTOMER
EXPERIENCE EASY,

86

00:04:59,433 --> 00:05:01,800
NATURAL, FLUID, INTUITIVE.

87

00:05:03,366 --> 00:05:05,466
NARRATOR: BY INCORPORATING
DIRECTIONAL FLOORING

88

00:05:05,566 --> 00:05:08,633
AND LIGHTING
INTO THE AIRPORT DESIGN,

89

00:05:08,733 --> 00:05:12,900
THE SPACE ITSELF TELLS
THE PASSENGER WHERE TO GO,

90

00:05:13,000 --> 00:05:15,933
WHILE THE SIGNS MERELY ASSIST.

91

00:05:17,666 --> 00:05:20,000
IT MIGHT SEEM
COUNTERINTUITIVE,

92
00:05:20,100 --> 00:05:23,000
BUT SIGNS CAN ACTUALLY
SLOW US DOWN.

93
00:05:23,100 --> 00:05:26,400
YOU CAN'T RESIST STOPPING
TO READ THEM,

94
00:05:26,500 --> 00:05:30,333
SO ATLANTA HAS AS FEW
AS POSSIBLE.

95
00:05:34,033 --> 00:05:36,433
BUT IT'S NOT JUST ABOUT
THE ACTUAL SPEED

96
00:05:36,533 --> 00:05:37,900
AT WHICH WE MOVE.

97
00:05:38,000 --> 00:05:40,933
IT'S ALSO ABOUT OUR PERCEPTION.

98
00:05:44,000 --> 00:05:46,733
THERE'S NOTHING WORSE THAN
PICKING THE SLOW LINE

99
00:05:46,833 --> 00:05:49,733
WHEN YOU'RE WAITING
TO GO THROUGH SECURITY.

100
00:05:49,833 --> 00:05:52,500
IT CREATES TENSION
AND LINE ENVY,

101
00:05:52,600 --> 00:05:54,966
AGITATING PASSENGERS.

102
00:05:56,433 --> 00:06:00,200
THAT'S WHY MANY AIRPORTS
NOW USE "S"-SHAPED LINES,

103
00:06:00,300 --> 00:06:02,300
ATLANTA INCLUDED.

104
00:06:03,866 --> 00:06:07,100
SERPENTINE LINES HAVE NOW BEEN
PROVEN TO BE MUCH FASTER

105
00:06:07,200 --> 00:06:11,233
FOR PEOPLE-PROCESSING
THAN MULTIPLE SINGLE-FILE LINES.

106
00:06:11,333 --> 00:06:15,266
FOR THE PASSENGERS,
THEY KEEP THINGS FAIR...

107
00:06:20,333 --> 00:06:22,566
CREATING ONE ORDERED LINE,

108
00:06:22,666 --> 00:06:26,900
SO NOBODY MOVES FASTER
THAN ANYBODY ELSE...

109
00:06:27,000 --> 00:06:28,900
AND THAT MEANS WE'RE ALL
LESS STRESSED-OUT

110
00:06:29,000 --> 00:06:32,400
BY THE TIME WE REACH
THE CHECK-IN DESK.

111
00:06:34,500 --> 00:06:36,733
ONCE YOU'RE PAST CHECK-IN,

112
00:06:36,833 --> 00:06:40,233
THROUGH SECURITY,
AND ON THE MOVE TO THE GATE,

113
00:06:40,333 --> 00:06:43,233
ATLANTA HAS YET MORE
SUBTLE FEATURES

114
00:06:43,333 --> 00:06:48,100
HELPING REGULATE
THE TSUNAMI OF PASSENGERS.

115
00:06:48,200 --> 00:06:51,100
TAKE THE TRAVELATOR.

116
00:06:51,200 --> 00:06:53,266
JIM: WELL, YOU MIGHT THINK

WE'RE GOING FASTER

117

00:06:53,366 --> 00:06:55,433
BY BEING ON A TRAVELATOR,
BUT WE'RE REALLY NOT,

118

00:06:55,533 --> 00:06:57,633
AT LEAST NOT WHEN WE'RE
STANDING STILL.

119

00:06:57,733 --> 00:06:59,633
THERE ARE TWO REASONS WHY
YOU HAVE TRAVELATORS.

120

00:06:59,733 --> 00:07:01,700
THE FIRST IS A MATTER
OF CONVENIENCE.

121

00:07:01,800 --> 00:07:04,033
YOU HAVE LONG DISTANCES TO WALK
IN THE BIGGEST AIRPORT

122

00:07:04,133 --> 00:07:05,533
IN THE WORLD, RIGHT?

123

00:07:05,633 --> 00:07:08,533
SO, YOU KNOW, THE PERCEPTION IS,
BY GETTING ON A TRAVELATOR,

124

00:07:08,633 --> 00:07:11,200
IT'S EASIER TO GET
FROM ONE POINT TO THE OTHER

125

00:07:11,300 --> 00:07:13,733
WHILE YOU'RE SCHLEPPING
ALL YOUR LUGGAGE.

126

00:07:17,800 --> 00:07:21,700
NARRATOR: TRAVELATORS CREATE
AN ORDERED HUMAN HIGHWAY,

127

00:07:21,800 --> 00:07:24,666
WITH LANES ALL GOING
AT DIFFERENT SPEEDS.

128

00:07:24,766 --> 00:07:28,200
THEY KEEP US MOVING
AND HELP PREVENT GRIDLOCK.

129
00:07:30,766 --> 00:07:32,833
IN AN AIRPORT THIS SIZE,

130
00:07:32,933 --> 00:07:34,833
THAT'S ESSENTIAL.

131
00:07:34,933 --> 00:07:37,600
AT 4,700 ACRES,

132
00:07:37,700 --> 00:07:41,666
ATLANTA HAS ONE OF THE LARGEST
AIRPORT SITES IN THE WORLD...

133
00:07:44,233 --> 00:07:46,800
AND IT'S SO SPREAD OUT
THAT THE DISTANCE

134
00:07:46,900 --> 00:07:49,233
TO YOUR GATE CAN BE
OVER A MILE.

135
00:07:50,800 --> 00:07:53,200
IF PASSENGERS HAD TO MAKE
THE JOURNEY ON FOOT,

136
00:07:53,300 --> 00:07:55,300
EVEN WITH THE HELP
OF TRAVELATORS,

137
00:07:55,400 --> 00:07:58,966
SOME WOULD BE GUARANTEED
TO BE LATE REACHING THEIR PLANE,

138
00:07:59,066 --> 00:08:02,533
AND THAT WOULD CAUSE DELAYS.

139
00:08:05,933 --> 00:08:09,333
THAT'S WHERE
THE PLANE TRAIN COMES IN.

140
00:08:09,433 --> 00:08:12,333
RUNNING UNDERGROUND
ON A LINE THAT CONNECTS

141
00:08:12,433 --> 00:08:14,833
ALL OF ATLANTA'S MAIN

TERMINAL BUILDINGS,

142

00:08:14,933 --> 00:08:18,700

IT'S THE SPINE THAT HOLDS
THIS AIRPORT TOGETHER.

143

00:08:22,766 --> 00:08:24,733

IT'S CONTROLLED FROM
A HIDDEN BUNKER

144

00:08:24,833 --> 00:08:27,066

30 FEET BELOW GROUND.

145

00:08:28,966 --> 00:08:33,366

CHRISTOPHER SMITH IS ATLANTA'S
TRANSPORTATION SYSTEMS DIRECTOR,

146

00:08:33,466 --> 00:08:36,533

AND IT'S HIS JOB TO KEEP
THE PLANE TRAIN UP AND RUNNING.

147

00:08:36,633 --> 00:08:39,700

CHRISTOPHER: WE MOVE,
ON AVERAGE, ABOUT 94

148

00:08:39,799 --> 00:08:43,866

TO OVER 100 MILLION PASSENGERS,
SO, WITH THAT BEING SAID,

149

00:08:43,966 --> 00:08:46,700

YOU KNOW, THIS IS
THE BUSIEST, UM, TRAIN SYSTEM

150

00:08:46,800 --> 00:08:49,033

IN THE UNITED STATES.

151

00:08:49,133 --> 00:08:52,200

IF THIS TRAIN SYSTEM
BREAKS DOWN, THEN WHAT YOU HAVE

152

00:08:52,300 --> 00:08:54,200

IS A RIPPLE EFFECT
THROUGHOUT THIS AIRPORT

153

00:08:54,300 --> 00:08:57,266

AND THROUGHOUT THE NATION,
AND HERE IN ATLANTA,

154

00:08:57,366 --> 00:09:01,333

WE HAVE TO MAKE SURE THAT, UH,
ONE--THE TRAIN SYSTEM IS UP

155

00:09:01,433 --> 00:09:05,500

AND RUNNING AT ALL TIMES, AND
THE EFFICIENCY FACTOR IS THERE.

156

00:09:05,600 --> 00:09:09,166

WE DON'T HAVE MUCH WIGGLE ROOM
AT ALL AS RELATES TO,

157

00:09:09,266 --> 00:09:12,133

YOU KNOW, THE EFFICIENCY
OF THE TRAIN SYSTEM.

158

00:09:14,933 --> 00:09:18,066

NARRATOR: BUT EVEN ONCE YOU'VE
BEEN DEPOSITED AT THE GATE,

159

00:09:18,166 --> 00:09:20,433

THERE ARE STILL MORE
HIDDEN FORCES DIRECTING

160

00:09:20,533 --> 00:09:24,366

THE FINAL STAGES OF YOUR JOURNEY
TO THE PLANE.

161

00:09:27,433 --> 00:09:29,833

JIM: WHEN YOU GET TO YOUR GATE,
YOU WANT TO HAVE A SIGNAL,

162

00:09:29,933 --> 00:09:33,100

A CUE FOR PEOPLE TO SIT, RELAX,
AND WAIT FOR THEIR PLANE,

163

00:09:33,200 --> 00:09:36,100

AND SO YOU CHANGE THE SURFACE
FROM HARD SURFACE TO A SOFT,

164

00:09:36,200 --> 00:09:39,766

MORE COMFORTABLE SURFACE, AND
THAT'S THE--THAT'S THE MECHANISM

165

00:09:39,866 --> 00:09:43,733

THAT YOU GO FROM HARD
TO SOFT, WALK TO SIT.

166
00:09:46,666 --> 00:09:50,000
NARRATOR: SUBTLE DESIGN FEATURES
LIKE THESE ARE INDISPENSABLE

167
00:09:50,100 --> 00:09:52,533
IN A MODERN, BUSY AIRPORT.

168
00:09:54,600 --> 00:09:57,766
INFLUENCING OUR BEHAVIOR
UNCONSCIOUSLY,

169
00:09:57,866 --> 00:10:02,033
THEY'RE ESSENTIAL
FOR PREVENTING TRAVEL CHAOS.

170
00:10:02,133 --> 00:10:06,033
ATLANTA'S THANKSGIVING CRUSH
MIGHT SEEM LIKE AN EXCEPTION,

171
00:10:06,133 --> 00:10:10,766
BUT IN FACT, THIS IS
A VISION OF THE FUTURE.

172
00:10:10,866 --> 00:10:14,100
THE U.S. FEDERAL AVIATION
ADMINISTRATION PREDICTS

173
00:10:14,200 --> 00:10:17,100
THAT WITHIN TEN YEARS,
PEAKS LIKE THIS WILL BE

174
00:10:17,200 --> 00:10:21,600
AN EVERYDAY OCCURRENCE
ACROSS AMERICA'S BIG AIRPORTS.

175
00:10:21,700 --> 00:10:24,200
THIS IS THE NEW NORMAL.

176
00:10:27,266 --> 00:10:30,666
BUT THE HUMAN CRUSH IS JUST
ONE CHALLENGE TO OVERCOME

177
00:10:30,766 --> 00:10:33,333
IN GETTING YOUR FLIGHT
READY FOR TAKEOFF.

178
00:10:34,900 --> 00:10:37,966

THERE'S ALSO THE SMALL MATTER
OF UP TO 8 TONS OF BAGGAGE

179
00:10:38,066 --> 00:10:41,333
THAT FLIES WITH US
ON THE BIGGEST JETS.

180
00:10:43,966 --> 00:10:47,200
WE DON'T EVEN THINK ABOUT IT;
WE DROP OUR BAG AT THE CHECK-IN

181
00:10:47,300 --> 00:10:50,600
AND JUST EXPECT IT
TO MATERIALIZE AT THE OTHER END.

182
00:10:52,166 --> 00:10:55,633
MOST OF US HAVE NEVER EVEN
CONSIDERED THE VAST MACHINES,

183
00:10:55,733 --> 00:10:59,133
UNSEEN WORKERS,
AND COMPLEX NETWORKS NEEDED

184
00:10:59,233 --> 00:11:01,733
TO MOVE OUR LUGGAGE
FROM "A" TO "B."

185
00:11:01,833 --> 00:11:05,733
AT DUBAI AIRPORT,
BAGGAGE PROCESSING LOOKS,

186
00:11:05,833 --> 00:11:10,133
ON THE SURFACE, EXACTLY
THE SAME AS ANYWHERE ELSE.

187
00:11:10,233 --> 00:11:12,300
BUT THIS AIRPORT HANDLES

188
00:11:12,400 --> 00:11:15,833
MORE INTERNATIONAL PASSENGERS
THAN ANY OTHER.

189
00:11:17,900 --> 00:11:20,800
IN JUST 3 HOURS
OF THE MORNING PEAK,

190
00:11:20,900 --> 00:11:24,300
THEY PROCESS AROUND

50,000 BAGS.

191

00:11:24,400 --> 00:11:28,800
STACKED LIKE THIS, THEY'D REACH
AS HIGH AS DUBAI'S BURJ KHALIFA,

192

00:11:28,900 --> 00:11:33,300
THE TALLEST BUILDING
IN THE WORLD.

193

00:11:33,400 --> 00:11:38,300
ANNUALLY, THE AIRPORT HANDLES
A STAGGERING 57 MILLION ITEMS,

194

00:11:38,400 --> 00:11:42,333
EQUIVALENT TO
1,100 BURJ KHALIFAS...

195

00:11:43,900 --> 00:11:47,833
AND IT'S ALL GOT TO BE WHISKED
THROUGH THE AIRPORT.

196

00:11:49,733 --> 00:11:53,133
EVERY LAST ONE OF THEM HAS
TO GET TO THE RIGHT PLANE

197

00:11:53,233 --> 00:11:55,566
AT EXACTLY THE RIGHT TIME.

198

00:11:58,533 --> 00:12:01,500
BUT NO MATTER WHERE
YOU ARE IN THE WORLD,

199

00:12:01,600 --> 00:12:05,000
EVERY SUITCASE HAS
TO HAVE ONE OF THESE--

200

00:12:05,100 --> 00:12:07,533
THE HUMBLE BAGGAGE TAG.

201

00:12:08,933 --> 00:12:10,833
IT MIGHT NOT SEEM LIKE MUCH,

202

00:12:10,933 --> 00:12:14,033
BUT THIS TAG IS
YOUR BAG'S PASSPORT.

203

00:12:15,766 --> 00:12:17,833
SOME OF IT IS EASY
TO DECIPHER--

204
00:12:17,933 --> 00:12:21,833
PASSENGER NAME AND 3-DIGIT
DESTINATION AIRPORT CODE--

205
00:12:21,933 --> 00:12:24,166
BUT THE REALLY IMPORTANT THING

206
00:12:24,266 --> 00:12:28,200
IS THE 10-DIGIT NUMBER PRINTED
ON EVERY BAG TAG.

207
00:12:29,766 --> 00:12:33,166
THE FIRST DIGIT IDENTIFIES
THE BAG TYPE AND PRIORITY LEVEL;

208
00:12:33,266 --> 00:12:36,666
THE NEXT 3, THE AIRLINE
IT'S FLYING WITH;

209
00:12:36,766 --> 00:12:40,633
AND THE FINAL 6 ARE YOUR BAG'S
UNIQUE I.D. CODE.

210
00:12:45,700 --> 00:12:48,600
THIS SIMPLE BARCODE DETERMINES
EXACTLY WHAT HAPPENS

211
00:12:48,700 --> 00:12:51,633
TO YOUR SUITCASE AFTER CHECK-IN.

212
00:12:53,200 --> 00:12:56,600
IT'S ABOUT TO EMBARK
ON A JOURNEY OF UP TO 85 MILES

213
00:12:56,700 --> 00:12:58,266
TO REACH YOUR PLANE.

214
00:12:59,833 --> 00:13:04,966
80 FEET BENEATH THE AIRPORT LIES
A BIZARRE SUBTERRANEAN WORLD,

215
00:13:05,066 --> 00:13:09,833
A HIDDEN, HIGH-SPEED
RAILWAY NETWORK.

216

00:13:12,400 --> 00:13:16,233
WITH A CONSTRUCTION COST
OF AROUND \$700 MILLION,

217

00:13:16,333 --> 00:13:20,066
THIS IS THE WORLD'S BIGGEST
LUGGAGE SYSTEM,

218

00:13:20,166 --> 00:13:22,666
AND NOT A BAGGAGE HANDLER
IN SIGHT.

219

00:13:28,100 --> 00:13:32,533
AFTER CHECK-IN, YOUR BAG SLIDES
INTO A YELLOW TRAY.

220

00:13:34,733 --> 00:13:38,800
EACH ONE HAS A UNIQUE
RADIO FREQUENCY CHIP I.D.,

221

00:13:38,900 --> 00:13:41,300
AND THE COMPUTER TRACKS
WHICH BAG HAS LANDED

222

00:13:41,400 --> 00:13:43,333
IN WHICH TRAY.

223

00:13:47,100 --> 00:13:50,500
DUBAI BAGGAGE MANAGER
GRAEME POLLOCK IS TASKED

224

00:13:50,600 --> 00:13:54,133
WITH KEEPING AN EYE
OVER THIS VAST SYSTEM.

225

00:13:55,700 --> 00:13:57,966
GRAEME: THE DUBAI BAGGAGE SYSTEM
HERE AT TERMINAL 3 IS

226

00:13:58,066 --> 00:14:00,333
VERY EFFICIENT
IN TERMS OF TRACKING.

227

00:14:00,433 --> 00:14:04,400
SO WHEN THE TRAY IS ON THE TRACK
SYSTEM, WE HAVE RFID READERS.

228

00:14:04,500 --> 00:14:07,066
THOSE READERS WILL TAKE
THE INFORMATION FROM THE TRAY,

229

00:14:07,166 --> 00:14:09,733
AND IT WILL SEND A MESSAGE
TO OUR BAGGAGE CONTROL ROOM,

230

00:14:09,833 --> 00:14:12,566
SAYING, "HERE I AM, THIS IS
THE LOCATION OF THE TRAY."

231

00:14:12,666 --> 00:14:14,733
IT'LL ALSO TELL
THE BAGGAGE SYSTEM

232

00:14:14,833 --> 00:14:17,000
IN WHICH DIRECTION
THAT TRAY SHOULD GO TO.

233

00:14:17,100 --> 00:14:19,433
WE CAN TRACK 100% OF YOUR BAGS,

234

00:14:19,533 --> 00:14:22,100
WE TRACK THE TRAYS AS THEY GO
AROUND THE SYSTEM, SO WE'LL BE

235

00:14:22,200 --> 00:14:24,466
ABLE TO IDENTIFY EXACTLY WHERE
THAT TRAY IS AND MAKE SURE

236

00:14:24,566 --> 00:14:27,466
IT ENDS UP AT THE CORRECT
LOCATION AT THE CORRECT TIME.

237

00:14:30,533 --> 00:14:33,600
NARRATOR: THE COMPUTERIZED BRAIN
OF THE LUGGAGE SYSTEM KNOWS

238

00:14:33,700 --> 00:14:36,266
EXACTLY WHERE EVERY BAG IS GOING

239

00:14:36,366 --> 00:14:39,133
WITHIN THIS HUGE NETWORK,

240

00:14:39,233 --> 00:14:43,400
AND IT'LL PLOT EVERY INCH

OF ITS JOURNEY TO YOUR PLANE.

241

00:14:45,433 --> 00:14:47,333
IF YOUR FLIGHT'S LEAVING
WITHIN AN HOUR,

242

00:14:47,433 --> 00:14:50,866
THE COMPUTER SENDS YOUR BAG
STRAIGHT TO THE LOADING AREA.

243

00:14:52,900 --> 00:14:55,733
BUT FOR THOSE OF US
WHO LIKE TO ARRIVE EARLY,

244

00:14:55,833 --> 00:14:57,733
OUR BAGS END UP HERE--

245

00:14:57,833 --> 00:15:00,500
THE EARLY BAGGAGE
STORAGE SYSTEM.

246

00:15:00,600 --> 00:15:03,400
GRAEME: IF YOU WERE
TO CHECK IN 3 TO 6 HOURS

247

00:15:03,500 --> 00:15:06,200
BEFORE YOUR FLIGHT DEPARTURE,
THAT BAG WOULD ACTUALLY BE TAKEN

248

00:15:06,300 --> 00:15:09,200
TO AN EARLY BAG STORE,
WHICH AT THIS MOMENT IN TIME

249

00:15:09,300 --> 00:15:12,133
CAN TAKE ABOUT 16,000 BAGS.

250

00:15:12,233 --> 00:15:15,100
THE BAG'LL BE STORED ON THE TRAY
WITHIN THE RACKING SYSTEM.

251

00:15:15,200 --> 00:15:17,100
WHEN THE SYSTEM IDENTIFIES

252

00:15:17,200 --> 00:15:20,066
THAT THAT FLIGHT IS READY
TO LEAVE, IT WILL TAKE THAT BAG

253

00:15:20,166 --> 00:15:22,066
FROM THE SYSTEM USING
A MECHANICAL ARM

254
00:15:22,166 --> 00:15:24,033
AND INJECT IT
INTO THE MAIN SYSTEM.

255
00:15:26,200 --> 00:15:28,766
NARRATOR: THE SHEER VOLUME
OF BAGGAGE MOVING

256
00:15:28,866 --> 00:15:32,100
THROUGH DUBAI AIRPORT MEANS
THIS UNDERGROUND RAILWAY

257
00:15:32,200 --> 00:15:34,600
CANNOT BE ALLOWED TO FAIL,

258
00:15:34,700 --> 00:15:37,100
AND MONITORING IT ALL
FROM THE CONTROL ROOM--

259
00:15:37,200 --> 00:15:40,933
FAR MORE PEOPLE THAN
ON THE ENTIRE 85 MILES

260
00:15:41,033 --> 00:15:42,933
OF DESERTED BAGGAGE CONVEYORS.

261
00:15:43,033 --> 00:15:44,866
MAN: OPEN THE DOUBLE
X6, AND 374,

262
00:15:44,966 --> 00:15:46,533
YOU NEED TO CLEAR IT
FAST, PLEASE.

263
00:15:46,633 --> 00:15:48,700
NARRATOR:
SYSTEM OPERATOR SURESH BABU

264
00:15:48,800 --> 00:15:51,833
IS IN CHARGE OF KEEPING
THE BAGS MOVING.

265
00:16:25,566 --> 00:16:27,466
NARRATOR: THE INDICATOR BOARD

FOLLOWS A BASIC

266

00:16:27,566 --> 00:16:29,633
TRAFFIC LIGHT WARNING SYSTEM.

267

00:16:29,733 --> 00:16:33,066
SURESH IS ON CONSTANT ALERT
FOR A RED LIGHT...

268

00:16:33,166 --> 00:16:34,633
COPY THAT, 6.

269

00:16:34,733 --> 00:16:37,500
NARRATOR: AND JUST
AN HOUR INTO HIS SHIFT,

270

00:16:37,600 --> 00:16:39,833
AT THE HEIGHT OF
THE MORNING RUSH HOUR,

271

00:16:39,933 --> 00:16:41,833
HE SPOTS A PROBLEM--

272

00:16:41,933 --> 00:16:44,766
A WARNING INDICATOR
ON CONCOURSE "D."

273

00:16:44,866 --> 00:16:46,400
[INDISTINCT]

274

00:16:46,500 --> 00:16:48,566
NARRATOR: SOMETHING SEEMS
TO BE JAMMING THE SYSTEM,

275

00:16:48,666 --> 00:16:52,166
AND THE LUGGAGE RESPONSE TEAM
HAVE JUST TEN MINUTES TO FIX IT.

276

00:16:54,166 --> 00:16:56,233
IF THEY CAN'T SOLVE THE PROBLEM,

277

00:16:56,333 --> 00:16:59,400
THEY'LL SOON HAVE THOUSANDS
OF BAGS BACKING UP,

278

00:16:59,500 --> 00:17:02,466
AND THAT COULD MEAN DOZENS

OF DELAYED PLANES.

279

00:17:02,566 --> 00:17:03,800

MAN: OK? IT'S IN?

280

00:17:03,900 --> 00:17:05,133

SO EVERYTHING IS OK?

281

00:17:05,233 --> 00:17:06,433

YES.

282

00:17:06,533 --> 00:17:08,933

NARRATOR: ONE OF THE TRAYS
HAS DERAILED.

283

00:17:09,033 --> 00:17:10,900

[INDISTINCT]

284

00:17:11,000 --> 00:17:14,033

NARRATOR: IT MAY APPEAR TO BE
ONLY A MINOR INCIDENT,

285

00:17:14,133 --> 00:17:18,733

BUT IT'S GOT THE POTENTIAL
TO SHUT DOWN THE ENTIRE AIRPORT.

286

00:17:27,099 --> 00:17:30,533

NARRATOR: THEY FIXED IT,
AND ABOVE GROUND,

287

00:17:30,633 --> 00:17:33,433

NONE OF THE PASSENGERS
ARE ANY THE WISER.

288

00:17:35,000 --> 00:17:37,266

SINCE 2008, WHEN IT OPENED,

289

00:17:37,366 --> 00:17:39,433

DUBAI'S BAGGAGE SYSTEM
HAS DELIVERED

290

00:17:39,533 --> 00:17:42,466

NEARLY 400 MILLION BAGS.

291

00:17:44,100 --> 00:17:45,666

AND IN ALL THAT TIME,

292
00:17:45,766 --> 00:17:48,700
IT'S NEVER BROKEN DOWN.

293
00:17:50,333 --> 00:17:52,566
BUT DESPITE
ALL THIS TECHNOLOGY,

294
00:17:52,666 --> 00:17:55,500
FOR THE FINAL FEW FEET
UP TO THE PLANE,

295
00:17:55,600 --> 00:17:58,666
IT'S BACK TO GOOD,
OLD-FASHIONED MUSCLE POWER.

296
00:18:23,700 --> 00:18:26,266
NARRATOR: WITHOUT THESE
AUTOMATED BAGGAGE SYSTEMS,

297
00:18:26,366 --> 00:18:29,466
LARGE AIRPORTS COULDN'T HOPE
TO DEAL WITH THEIR SHARE

298
00:18:29,566 --> 00:18:32,800
OF THE 3 1/2 BILLION
PIECES OF LUGGAGE

299
00:18:32,900 --> 00:18:35,366
WE FLY WITH ANNUALLY.

300
00:18:37,933 --> 00:18:40,333
YOU MAY NOW BE ABOUT
TO BOARD YOUR PLANE,

301
00:18:40,433 --> 00:18:43,833
WHILE YOUR SUITCASE IS BEING
LOADED INTO THE HOLD,

302
00:18:43,933 --> 00:18:47,333
BUT WHAT ABOUT
THE AIRCRAFT ITSELF?

303
00:18:47,433 --> 00:18:49,833
HAVE YOU EVER REALLY
CONSIDERED WHAT IT TAKES

304
00:18:49,933 --> 00:18:52,500

TO MAKE THAT GIANT
METAL MACHINE

305

00:18:52,600 --> 00:18:55,733
THAT'S SITTING WAITING
FOR YOU AT THE GATE?

306

00:18:56,966 --> 00:18:59,033
WITH NEARLY 4 MILLION PARTS,

307

00:18:59,133 --> 00:19:01,633
PUTTING ONE TOGETHER ISN'T EASY.

308

00:19:03,200 --> 00:19:06,100
THE BIGGEST, AND ARGUABLY
THE MOST CHALLENGING

309

00:19:06,200 --> 00:19:07,666
PASSENGER JET TO BUILD

310

00:19:07,766 --> 00:19:09,166
IS THIS--

311

00:19:09,266 --> 00:19:12,166
THE AIRBUS A380.

312

00:19:12,266 --> 00:19:14,766
FROM A SEAT IN THE CABIN,
THIS PLANE FEELS

313

00:19:14,866 --> 00:19:16,733
MUCH LIKE ANY OTHER.

314

00:19:16,833 --> 00:19:18,233
IT'S ONLY UP CLOSE

315

00:19:18,333 --> 00:19:22,100
THAT ITS SHEER SCALE
BECOMES APPARENT.

316

00:19:22,200 --> 00:19:24,566
BUT GETTING THIS
MODERN MIRACLE OF ENGINEERING

317

00:19:24,666 --> 00:19:28,166
READY TO FLY IS
A MAMMOTH TASK;

318
00:19:28,266 --> 00:19:30,666
ONE THAT, IRONICALLY,

319
00:19:30,766 --> 00:19:33,700
HAPPENS OUTSIDE
A SMALL RURAL VILLAGE.

320
00:19:40,200 --> 00:19:43,466
THIS IS GIMONT
IN SOUTHWESTERN FRANCE.

321
00:19:46,400 --> 00:19:49,066
NOTHING MUCH HAPPENS HERE
MOST OF THE TIME,

322
00:19:49,166 --> 00:19:51,533
BUT ONCE EVERY TWO WEEKS,

323
00:19:51,633 --> 00:19:53,766
UNDER COVER OF DARKNESS,

324
00:19:53,866 --> 00:19:55,933
THE PEACE AND QUIET
IS SHATTERED.

325
00:19:57,333 --> 00:19:58,733
AROUND MIDNIGHT,

326
00:19:58,833 --> 00:20:01,400
THE ROADS ARE CLOSED
TO NORMAL TRAFFIC,

327
00:20:01,500 --> 00:20:04,633
AND ESCORTED BY LOCAL POLICE,

328
00:20:04,733 --> 00:20:08,133
A GIANT PROCESSION
GETS UNDERWAY.

329
00:20:08,233 --> 00:20:12,633
IT'S LIKE SOME KIND OF HUSHED
INDUSTRIAL CARNIVAL.

330
00:20:12,733 --> 00:20:15,966
THESE ARE THE GARGANTUAN
BUILDING BLOCKS

331
00:20:16,066 --> 00:20:19,500
OF JUST ONE A380.

332
00:20:20,900 --> 00:20:22,300
THE PROCESSION
OF AIRCRAFT PARTS

333
00:20:22,400 --> 00:20:24,800
THROUGH THE NARROW STREETS
OF THIS TINY VILLAGE

334
00:20:24,900 --> 00:20:29,300
IS THE FINAL LEG
OF AN EPIC EUROPEAN JOURNEY.

335
00:20:29,400 --> 00:20:32,666
IN CHARGE OF KEEPING
THIS HUGE NIGHT-TIME CONVOY

336
00:20:32,766 --> 00:20:35,500
ON THE MOVE IS AIRBUS
TRANSPORTATION MANAGER

337
00:20:35,600 --> 00:20:37,533
FABIEN DARTHOUT.

338
00:21:05,200 --> 00:21:07,766
NARRATOR: IT'S A SIGHT
THAT'S SO STRANGE,

339
00:21:07,866 --> 00:21:10,433
IT MAKES YOU WONDER WHY
ANY AIRLINE MANUFACTURER

340
00:21:10,533 --> 00:21:13,166
WOULD GO TO SUCH LENGTHS.

341
00:21:13,266 --> 00:21:15,166
THE ANSWER LIES

342
00:21:15,266 --> 00:21:19,066
WITH THE PLANE'S
\$21 BILLION PRICE TAG.

343
00:21:20,633 --> 00:21:23,200
IT COSTS SO MUCH

TO DESIGN AND BUILD

344

00:21:23,300 --> 00:21:26,566
THAT NO ONE COUNTRY
COULD HAVE CARRIED THE RISK.

345

00:21:27,966 --> 00:21:30,866
INSTEAD, 4 NATIONS INVESTED:

346

00:21:30,966 --> 00:21:34,866
FRANCE, GERMANY,
BRITAIN, AND SPAIN.

347

00:21:34,966 --> 00:21:38,033
IN RETURN FOR THEIR MONEY,
EACH GOT THE RIGHT

348

00:21:38,133 --> 00:21:41,800
TO MANUFACTURE PART
OF THIS MONSTER PLANE.

349

00:21:43,200 --> 00:21:46,100
SO THE WINGS HAVE TRAVELED
OVER 900 MILES

350

00:21:46,200 --> 00:21:49,100
FROM THEIR FACTORY
IN NORTH WALES,

351

00:21:49,200 --> 00:21:52,100
WHILE THE FUSELAGE HAS BEEN
SHIPPED THE SAME DISTANCE

352

00:21:52,200 --> 00:21:55,100
FROM HAMBURG, GERMANY...

353

00:21:55,200 --> 00:21:59,100
AND ITS GIANT TAIL SECTION
HAS COME 1,200 MILES

354

00:21:59,200 --> 00:22:02,700
FROM ITS CONSTRUCTION PLANT
IN SOUTHERN SPAIN.

355

00:22:05,766 --> 00:22:07,933
ALL OF THESE A380 PARTS
ARE HEADING

356

00:22:08,033 --> 00:22:12,000
TO A DESTINATION JUST
A FEW MILES FROM HERE,

357

00:22:12,100 --> 00:22:16,000
THE AIRBUS FINAL ASSEMBLY PLANT
OUTSIDE TOULOUSE.

358

00:22:16,100 --> 00:22:20,533
THIS CUSTOM-BUILT FACTORY IS ONE
OF THE BIGGEST IN EUROPE...

359

00:22:22,100 --> 00:22:25,166
AND IT'S HERE THAT
THE A380's COMPONENTS

360

00:22:25,266 --> 00:22:28,400
ARE TURNED INTO
A COMPLETE PLANE.

361

00:22:31,233 --> 00:22:33,800
THE PROCESS BEGINS
WITH MOVING EACH PIECE

362

00:22:33,900 --> 00:22:37,866
OF THIS GIANT KIT OF PARTS
INTO THE MASSIVE ASSEMBLY RIG.

363

00:22:39,633 --> 00:22:41,300
ONCE THE PIECES ARE
ALL IN PLACE,

364

00:22:41,400 --> 00:22:44,300
ENGINEERS HAVE TO START
BOLTING THEM ALL TOGETHER,

365

00:22:44,400 --> 00:22:48,800
RELYING ON A SURPRISINGLY
LOW-TECH METHOD-

366

00:22:48,900 --> 00:22:51,300
RIVETING.

367

00:22:51,400 --> 00:22:54,800
HEAD OF ASSEMBLY
JEAN-FRANCOIS PAUL IS IN CHARGE

368

00:22:54,900 --> 00:22:58,266
OF THIS STAGE
OF AIRCRAFT CONSTRUCTION.

369
00:23:15,666 --> 00:23:19,400
NARRATOR: IT TAKES TWO PEOPLE
TO PUT IN EACH RIVET.

370
00:23:38,133 --> 00:23:40,200
NARRATOR: RIVETING
MAY APPEAR SIMPLE,

371
00:23:40,300 --> 00:23:43,233
BUT IT'S ACTUALLY
A HIGHLY SKILLED JOB.

372
00:23:44,800 --> 00:23:47,200
MAKE THE SLIGHTEST
MISTAKE WITH ANY ROW,

373
00:23:47,300 --> 00:23:50,733
AND AN AIRCRAFT COULD
TEAR APART IN MID-AIR.

374
00:23:52,100 --> 00:23:54,000
SO THE NEXT TIME YOU FIND
YOURSELF SITTING ON-BOARD

375
00:23:54,100 --> 00:23:56,000
ONE OF THESE HUGE PLANES,

376
00:23:56,100 --> 00:23:58,833
BEAR IN MIND THAT IT'S
ALL BEING HELD TOGETHER

377
00:23:58,933 --> 00:24:01,566
BY OVER 20,000 RIVETS,

378
00:24:01,666 --> 00:24:06,600
EVERY LAST ONE OF THEM DRIVEN
IN AND TIGHTENED BY HAND.

379
00:24:09,166 --> 00:24:11,866
BUT EVEN WITH ALL
THE RIVETS IN PLACE,

380
00:24:11,966 --> 00:24:15,233
THE AIRCRAFT'S STILL

ONLY A SHELL.

381

00:24:15,333 --> 00:24:17,566
THE NEXT STEP INVOLVES

382

00:24:17,666 --> 00:24:21,933
MOVING THE EMPTY BODY
TO A SECOND VAST HANGAR.

383

00:24:22,033 --> 00:24:26,433
HERE, THE PLANE IS GIVEN
ITS VITAL SYSTEMS,

384

00:24:26,533 --> 00:24:30,933
INCLUDING OVER 300 MILES
OF WIRES AND CABLING.

385

00:24:31,033 --> 00:24:33,933
THE FINAL TOUCHES,
INCLUDING LIGHTING,

386

00:24:34,033 --> 00:24:36,433
PANELING, AND SEATS
ARE ALL INSTALLED

387

00:24:36,533 --> 00:24:38,933
AFTER THE PLANES LEAVE
THIS FACTORY.

388

00:24:39,033 --> 00:24:42,666
INDIVIDUAL AIRLINES EACH CHOOSE
THEIR OWN CONFIGURATIONS.

389

00:24:42,766 --> 00:24:45,666
THE LAST PIECE
OF HEAVY ENGINEERING

390

00:24:45,766 --> 00:24:48,166
AT THE TOULOUSE PLANT
IS THE INSTALLATION

391

00:24:48,266 --> 00:24:50,466
OF THE 4 HUGE ENGINES

392

00:24:50,566 --> 00:24:52,800
THAT POWER THE A380.

393

00:24:59,133 --> 00:25:02,100
WITH THESE IN PLACE,
THIS IS NOW

394
00:25:02,200 --> 00:25:04,566
A FINISHED, FLYABLE AIRCRAFT.

395
00:25:06,066 --> 00:25:07,466
IN TOTAL,

396
00:25:07,566 --> 00:25:10,300
IT TAKES AROUND TWO MILLION
CONSTRUCTION HOURS

397
00:25:10,400 --> 00:25:13,333
TO BUILD EACH AIRBUS A380.

398
00:25:14,900 --> 00:25:17,300
AT 238 FEET,

399
00:25:17,400 --> 00:25:20,766
THIS AIRCRAFT IS LONGER
THAN 6 CITY BUSES...

400
00:25:22,333 --> 00:25:24,400
AND IT HAS A MASSIVE WINGSPAN,

401
00:25:24,500 --> 00:25:26,966
MEASURING OVER 260 FEET.

402
00:25:28,366 --> 00:25:31,800
ITS GIANT TAIL STANDS
NEARLY 80 FEET HIGH.

403
00:25:33,633 --> 00:25:35,533
THE A380 DWARFS

404
00:25:35,633 --> 00:25:39,033
ANY OTHER PASSENGER PLANE
FLYING TODAY.

405
00:25:40,600 --> 00:25:43,500
THERE ARE NOW OVER 190
OF THESE MONSTERS

406
00:25:43,600 --> 00:25:46,133
IN SERVICE AROUND THE WORLD.

407
00:25:50,200 --> 00:25:53,600
BUT WITH ANOTHER 129 ON ORDER,

408
00:25:53,700 --> 00:25:57,300
FOR THE TEAM IN TOULOUSE,
IT'S RIGHT ON TO THE NEXT ONE.

409
00:26:02,433 --> 00:26:06,833
THE SUPERSIZED A380 IS
A PLANE ON SUCH A SCALE,

410
00:26:06,933 --> 00:26:11,366
IT'S FORCED THE WORLD
OF AVIATION TO CHANGE AROUND IT.

411
00:26:13,166 --> 00:26:17,500
RUNWAYS HAVE BEEN REINFORCED
TO COPE WITH ITS WEIGHT,

412
00:26:17,600 --> 00:26:20,000
AND ANY AIRPORT
WANTING TO HOST IT

413
00:26:20,100 --> 00:26:24,500
HAS HAD TO MODIFY
ITS TERMINALS AND JETWAYS.

414
00:26:24,600 --> 00:26:27,166
THIS IS THE CITY IN THE SKY'S

415
00:26:27,266 --> 00:26:30,166
BIGGEST, MOST COMPLEX PLANE,

416
00:26:30,266 --> 00:26:33,000
A VAST MACHINE THAT HUMS AWAY

417
00:26:33,100 --> 00:26:35,866
WHILE YOU RELAX IN YOUR SEAT.

418
00:26:38,933 --> 00:26:41,833
AS YOU FLY ALONG,
BENEATH YOUR FEET,

419
00:26:41,933 --> 00:26:44,333
UNDER THE FLOORS,
AND WITHIN THE WALLS,

420
00:26:44,433 --> 00:26:47,000
ITS THOUSANDS OF SYSTEMS
ARE QUIETLY

421
00:26:47,100 --> 00:26:49,500
AND EFFICIENTLY KEEPING IT
IN THE AIR

422
00:26:49,600 --> 00:26:52,500
AND KEEPING YOU SAFE.

423
00:26:52,600 --> 00:26:55,000
AND IT WILL CONTINUE TO DO SO

424
00:26:55,100 --> 00:26:57,500
FOR THE 60 MILLION MILES
IT IS EXPECTED

425
00:26:57,600 --> 00:27:00,466
TO FLY OVER ITS LIFETIME.

426
00:27:00,566 --> 00:27:03,200
BUT THIS PLANE,
LIKE ANY OTHER,

427
00:27:03,300 --> 00:27:08,233
WOULDN'T BE GOING ANYWHERE
WITHOUT ONE MAGIC INGREDIENT.

428
00:27:13,166 --> 00:27:16,733
WITHOUT IT, THE ENTIRE
AIRBORNE METROPOLIS

429
00:27:16,833 --> 00:27:20,266
WOULD STALL
AND COME CRASHING DOWN.

430
00:27:22,100 --> 00:27:25,500
IT'S CALLED JET A1...

431
00:27:25,600 --> 00:27:27,500
FUEL,

432
00:27:27,600 --> 00:27:30,866
THE LIFEBLOOD
OF THE ENTIRE INDUSTRY.

433
00:27:32,266 --> 00:27:35,166
AND KEEPING MILLIONS OF GALLONS
OF THIS STUFF FLOWING

434
00:27:35,266 --> 00:27:39,200
CALLS FOR A SUPPLY SYSTEM
ON A VAST SCALE.

435
00:27:43,266 --> 00:27:47,200
GHENT, A SMALL TOWN
IN THE BELGIAN COUNTRYSIDE.

436
00:27:49,500 --> 00:27:51,400
IT'S HOME TO ONE
OF THE LARGEST

437
00:27:51,500 --> 00:27:54,400
JET FUEL STORAGE
FACILITIES IN EUROPE.

438
00:27:54,500 --> 00:27:58,366
THIS IS WHERE MUCH
OF THE CONTINENT'S JET FUEL

439
00:27:58,466 --> 00:28:01,933
STARTS ITS LONG JOURNEY
TO THE AIRPORT.

440
00:28:02,033 --> 00:28:04,433
THESE HUGE STORAGE TANKS

441
00:28:04,533 --> 00:28:07,833
ARE ABOUT TO BE FILLED
WITH AVIATION FUEL.

442
00:28:09,400 --> 00:28:12,800
EACH ONE HOLDS
JUST UNDER 12 MILLION GALLONS,

443
00:28:12,900 --> 00:28:17,833
ENOUGH TO FILL ABOUT 370
OF THE WORLD'S LARGEST PLANES.

444
00:28:19,400 --> 00:28:22,300
IT MIGHT SOUND
LIKE A LOT, BUT IN FACT,

445

00:28:22,400 --> 00:28:25,300

IT'S JUST A TINY DROP
IN THE OCEAN.

446

00:28:25,400 --> 00:28:27,800

THERE ARE OVER 25
VAST FUEL TANKS

447

00:28:27,900 --> 00:28:30,800

PACKED INTO THIS SITE ALONE.

448

00:28:30,900 --> 00:28:33,966

SPECIAL OPERATIONS MANAGER
FRANK ROELS

449

00:28:34,066 --> 00:28:37,466

OVERSEES THIS MASSIVE FACILITY.

450

00:28:37,566 --> 00:28:40,300

IN A COUPLE OF DAYS' TIME,
HE NEEDS TO START

451

00:28:40,400 --> 00:28:44,333

FILLING THESE TANKS WITH FUEL
FRESH FROM THE REFINERY.

452

00:28:45,733 --> 00:28:47,800

BEFORE IT'S FIT
FOR USE ON PLANES,

453

00:28:47,900 --> 00:28:52,300

JET FUEL NEEDS TO BE
100% PURE.

454

00:28:52,400 --> 00:28:56,833

ANY IMPURITIES COULD
EVENTUALLY BLOCK FUEL PIPES.

455

00:28:58,900 --> 00:29:01,033

BUT WHEN THE FUEL ARRIVES HERE,

456

00:29:01,133 --> 00:29:03,666

IT'S NOT YET AS CLEAN
AS IT SHOULD BE;

457

00:29:03,766 --> 00:29:06,166

THERE'S ONE UNLIKELY IMPURITY

458
00:29:06,266 --> 00:29:10,200
LEFT BEHIND FROM
THE REFINING PROCESS...

459
00:29:11,766 --> 00:29:13,666
WATER,

460
00:29:13,766 --> 00:29:18,700
SO FRANK AND HIS TEAM NEED
TO DO SOME SPRING CLEANING.

461
00:29:35,766 --> 00:29:38,333
NARRATOR: YEASTS AND MOLDS
IN THE WATER

462
00:29:38,433 --> 00:29:41,166
CAN FEED ON THE HYDROCARBONS
AND OTHER NUTRIENTS

463
00:29:41,266 --> 00:29:43,166
IN THE JET FUEL.

464
00:29:43,266 --> 00:29:46,166
AS THEY GROW,
THEY COULD FORM PARTICLES

465
00:29:46,266 --> 00:29:48,166
THAT COULD CLOG UP
FUEL FILTERS,

466
00:29:48,266 --> 00:29:50,966
WITH POTENTIALLY
CATASTROPHIC RESULTS.

467
00:30:02,200 --> 00:30:05,766
NARRATOR: SO, TO ENSURE
MOLD-FREE JET FUEL,

468
00:30:05,866 --> 00:30:08,066
THE WATER'S GOT TO GO.

469
00:30:08,166 --> 00:30:10,366
LUCKILY, THAT'S EASIER
THAN IT SOUNDS.

470
00:30:11,933 --> 00:30:14,333

WATER'S HEAVIER THAN FUEL,

471

00:30:14,433 --> 00:30:16,833
SO IT SIMPLY SEPARATES OUT,
SINKS TO THE BOTTOM

472

00:30:16,933 --> 00:30:21,366
OF THE HOLDING TANK, AND FLOWS
AWAY THROUGH THESE GIANT DRAINS.

473

00:30:25,166 --> 00:30:27,066
TO ALLOW IT TO DRAIN AWAY
COMPLETELY,

474

00:30:27,166 --> 00:30:31,266
THE BOTTOM OF THE TANK
HAS TO BE SPOTLESS.

475

00:30:31,366 --> 00:30:34,266
ANY OIL LEFT BEHIND
FROM A PREVIOUS STORAGE

476

00:30:34,366 --> 00:30:36,533
HAS GOT TO GO.

477

00:30:36,633 --> 00:30:38,533
ONCE THE TANK'S BEEN
SCRUBBED DOWN

478

00:30:38,633 --> 00:30:40,533
AND THOROUGHLY CLEANED,
IT'S READY

479

00:30:40,633 --> 00:30:43,033
TO BE FILLED WITH FUEL,

480

00:30:43,133 --> 00:30:45,900
BUT THERE'S ONE SMALL PROBLEM.

481

00:30:47,433 --> 00:30:49,666
THIS FACILITY SITS
HUNDREDS OF MILES

482

00:30:49,766 --> 00:30:52,433
FROM THE AIRPORTS WHERE
THE FUEL IS NEEDED,

483

00:30:52,533 --> 00:30:56,100
AND TRYING TO TRANSPORT SUCH
A MASSIVE VOLUME OF FUEL

484
00:30:56,200 --> 00:30:59,433
BY ROAD COULD CREATE CHAOS.

485
00:31:01,833 --> 00:31:04,900
IT WOULD REQUIRE
A DAILY CONVOY OF TRUCKS

486
00:31:05,000 --> 00:31:06,933
FROM GHENT ALONE.

487
00:31:09,000 --> 00:31:11,566
FACTOR IN THE CONTINENT'S
OTHER STORAGE PORTS,

488
00:31:11,666 --> 00:31:15,566
AND THERE'D BE AROUND 300,000
MORE TRUCK LOADS A YEAR,

489
00:31:15,666 --> 00:31:19,333
ADDING TO THE CHAOS ON EUROPE'S
ALREADY CROWDED HIGHWAYS.

490
00:31:21,400 --> 00:31:25,300
THE SOLUTION IS BURIED
UNDERGROUND.

491
00:31:25,400 --> 00:31:28,800
IT'S A HIDDEN NETWORK
KNOWN AS CEPS--

492
00:31:28,900 --> 00:31:31,400
THE CENTRAL EUROPEAN
PIPELINE SYSTEM--

493
00:31:31,500 --> 00:31:34,933
ONE OF THE BIGGEST AVIATION
FUEL PIPELINES IN THE WORLD.

494
00:31:36,500 --> 00:31:40,933
WITHOUT IT, EUROPE'S SKIES
WOULD BE A WHOLE LOT EMPTIER.

495
00:31:42,500 --> 00:31:44,400
BUILT BY NATO BACK IN

THE FIFTIES

496

00:31:44,500 --> 00:31:46,566
TO FUEL ITS COLD WAR BASES,

497

00:31:46,666 --> 00:31:51,100
THIS 3,000-MILE PIPELINE
SPANS THE CONTINENT.

498

00:31:52,500 --> 00:31:54,233
IN THE EVENT OF WAR,

499

00:31:54,333 --> 00:31:56,566
THIS HIDDEN FUEL NETWORK
WOULD HAVE HELPED KEEP

500

00:31:56,666 --> 00:31:58,833
MILITARY JETS IN THE AIR.

501

00:32:00,400 --> 00:32:03,366
MANY INTERNATIONAL AIRPORTS
AND SOME IN THE U.S. ARE FED

502

00:32:03,466 --> 00:32:06,366
BY PIPELINES LIKE CEPS,

503

00:32:06,466 --> 00:32:09,233
INCLUDING THE COLONIAL
PIPELINE THAT SUPPLIES

504

00:32:09,333 --> 00:32:11,733
SOME OF THE COUNTRY'S
BUSIEST AIRPORTS,

505

00:32:11,833 --> 00:32:14,233
INCLUDING ATLANTA,
RALEIGH-DURHAM,

506

00:32:14,333 --> 00:32:16,766
AND WASHINGTON DULLES.

507

00:32:18,833 --> 00:32:21,733
BUT IT'S CEPS
THAT CARRIES MORE JET FUEL

508

00:32:21,833 --> 00:32:25,233
ACROSS EUROPE

THAN ANY OTHER SYSTEM,

509

00:32:25,333 --> 00:32:28,233
AND TODAY, IT'S DELIVERING
MORE THAN EVER,

510

00:32:28,333 --> 00:32:31,733
AROUND 2.4 BILLION GALLONS
A YEAR,

511

00:32:31,833 --> 00:32:36,266
ALL FLOWING INTO SOME
OF EUROPE'S BIGGEST AIRPORTS.

512

00:32:37,733 --> 00:32:39,633
GERMANY'S FRANKFURT AIRPORT

513

00:32:39,733 --> 00:32:42,633
IS ONE OF ITS MOST
IMPORTANT CUSTOMERS.

514

00:32:44,166 --> 00:32:47,033
AROUND 60 MILLION
PASSENGERS TRAVEL

515

00:32:47,133 --> 00:32:50,566
FROM THIS MASSIVE
INTERNATIONAL HUB EVERY YEAR.

516

00:32:52,633 --> 00:32:55,533
AND MOST PASSENGERS WALKING
THROUGH THE ARRIVALS HALL

517

00:32:55,633 --> 00:32:58,366
HAVE NO IDEA
OF THE RIVERS OF FUEL

518

00:32:58,466 --> 00:33:00,966
FLOWING RIGHT BENEATH
THEIR FEET.

519

00:33:05,400 --> 00:33:07,800
THE MAN RESPONSIBLE
FOR GETTING THE FUEL

520

00:33:07,900 --> 00:33:10,300
FROM THE PIPELINE
INTO WAITING AIRCRAFT

521

00:33:10,400 --> 00:33:13,833
IS FUEL STATION MANAGER
GUNTHER HANSEL.

522

00:33:15,533 --> 00:33:19,433
GUNTHER AND HIS TEAM REFUEL
AROUND 230 AIRCRAFT

523

00:33:19,533 --> 00:33:22,433
EVERY SINGLE DAY.

524

00:33:22,533 --> 00:33:26,666
FIRST UP ON THE MEGA FORECOURT
THIS MORNING--AN A380.

525

00:33:26,766 --> 00:33:28,833
THIS ONE'S DUE
TO FLY OUT TO DUBAI

526

00:33:28,933 --> 00:33:31,366
JUST 45 MINUTES FROM NOW.

527

00:33:32,933 --> 00:33:34,933
TIME TO GET PUMPING.

528

00:34:08,233 --> 00:34:09,633
NARRATOR:
THE "DEAD MAN'S" HANDLE

529

00:34:09,733 --> 00:34:11,800
IS A VITAL SAFETY MECHANISM.

530

00:34:11,900 --> 00:34:14,033
IN THE EVENT OF ANY ACCIDENT,

531

00:34:14,133 --> 00:34:16,533
LETTING GO OF IT INSTANTLY
SHUTS OFF THE FLOW

532

00:34:16,633 --> 00:34:19,066
OF PRESSURIZED FUEL.

533

00:34:20,866 --> 00:34:24,766
IN THIS BUSY TERMINAL AREA
PACKED WITH LOADED PLANES,

534

00:34:24,866 --> 00:34:28,800

ANY FUEL LEAK WOULD BE
A SERIOUS HAZARD.

535

00:34:38,633 --> 00:34:42,699

NARRATOR: IT TAKES ABOUT
A HALF-HOUR, AND 25,000 GALLONS,

536

00:34:42,800 --> 00:34:45,733

TO FILL THE AIRCRAFT'S
GIANT TANKS...

537

00:34:47,800 --> 00:34:49,699

AND THE BILL--

538

00:34:49,800 --> 00:34:52,566

A TASTY \$28,000.

539

00:34:54,366 --> 00:34:57,133

IT MIGHT SOUND
LIKE A SMALL FORTUNE,

540

00:34:57,233 --> 00:35:01,266

BUT IT'S A TINY FRACTION
OF THE \$226 BILLION WORTH

541

00:35:01,366 --> 00:35:04,600

OF JET FUEL THAT THE CITY
IN THE SKY CONSUMES

542

00:35:04,700 --> 00:35:06,633

EVERY YEAR.

543

00:35:11,466 --> 00:35:15,733

GUNTHER'S TEAM ARE NOW FINISHED
REFUELING THIS AIRCRAFT,

544

00:35:15,833 --> 00:35:19,166

BUT WITH ANOTHER 229 PLANES
TO GO ON TODAY'S SHIFT,

545

00:35:19,266 --> 00:35:22,033

THEY'RE KEPT VERY BUSY.

546

00:35:24,100 --> 00:35:27,166

EXACTLY THE SAME SCENE IS
PLAYED OUT CONTINUOUSLY

547
00:35:27,266 --> 00:35:30,400
AT AIRPORTS
ALL AROUND THE WORLD.

548
00:35:31,633 --> 00:35:34,600
ACROSS THE U.S.,
AIRCRAFT CONSUME

549
00:35:34,700 --> 00:35:37,833
63 MILLION GALLONS A DAY.

550
00:35:41,400 --> 00:35:44,300
THE GLOBAL SUPPLY CHAINS
DELIVERING ALL THIS FUEL

551
00:35:44,400 --> 00:35:46,300
MUST BE TOTALLY RELIABLE.

552
00:35:46,400 --> 00:35:49,833
THE TAPS CAN NEVER BE
ALLOWED TO RUN DRY.

553
00:35:51,433 --> 00:35:54,200
WITH GAS IN THE TANK,
PASSENGERS AND LUGGAGE ON-BOARD,

554
00:35:54,300 --> 00:35:56,766
AND THE PLANE ITSELF
READY AND WAITING,

555
00:35:56,866 --> 00:36:00,266
YOU MIGHT THINK
IT'S TIME FOR TAKEOFF.

556
00:36:00,366 --> 00:36:04,833
BUT OUR FLIGHT'S STILL
MISSING ONE OTHER VITAL ELEMENT,

557
00:36:04,933 --> 00:36:08,600
ONE THAT MANY DREAD...

558
00:36:13,300 --> 00:36:15,000
AIRLINE FOOD.

559
00:36:16,566 --> 00:36:19,966
FEEDING THE CITY

IN THE SKY ISN'T EASY.

560

00:36:20,066 --> 00:36:24,033

YOU'VE SEEN FLIGHT ATTENDANTS
PREPPING AND SERVING MEALS.

561

00:36:24,133 --> 00:36:26,533

THEY MAKE IT ALL LOOK SO SIMPLE,

562

00:36:26,633 --> 00:36:29,066

LIKE A WELL-OILED MACHINE.

563

00:36:31,766 --> 00:36:35,200

BUT WHERE DO ALL
THESE MEALS COME FROM?

564

00:36:38,866 --> 00:36:42,766

WITH A MILLION HUNGRY RESIDENTS
AIRBORNE AT ANY ONE TIME,

565

00:36:42,866 --> 00:36:47,300

THIS IS A METROPOLIS
WITH A VERY LARGE APPETITE.

566

00:36:48,866 --> 00:36:50,933

IN GLOBAL TERMS,

567

00:36:51,033 --> 00:36:53,600

THE POPULATION OF THE CITY IN
THE SKY PACKS AWAY

568

00:36:53,700 --> 00:36:56,100

AROUND A BILLION
HOT MEALS AND SALADS

569

00:36:56,200 --> 00:36:58,600

EVERY YEAR,

570

00:36:58,700 --> 00:37:01,666

GORGES ON OVER TWO BILLION CAKES

571

00:37:01,766 --> 00:37:04,366

AND PASTRIES,

572

00:37:04,466 --> 00:37:07,200

AND WASHES IT ALL DOWN
WITH BILLIONS OF GALLONS

573

00:37:07,300 --> 00:37:10,533
OF WINE, WATER,
AND SOFT DRINKS.

574

00:37:10,633 --> 00:37:13,533
IT'S ENOUGH FOOD
AND DRINK TO FEED A CITY

575

00:37:13,633 --> 00:37:16,566
THE SIZE OF AUSTIN, TEXAS.

576

00:37:18,366 --> 00:37:22,100
THE PROCESS OF GETTING MILLIONS
OF MEALS INTO THE AIR STARTS

577

00:37:22,200 --> 00:37:24,100
AT THE CRACK OF DAWN

578

00:37:24,200 --> 00:37:26,366
AT AIRPORTS AROUND THE WORLD.

579

00:37:27,933 --> 00:37:29,666
DUBAI, 6 A.M.,

580

00:37:29,766 --> 00:37:32,666
AND A PROCESSION OF TRUCKS IS
DELIVERING EVERYTHING NEEDED

581

00:37:32,766 --> 00:37:35,200
FOR A JOURNEY INTO THE SKY.

582

00:37:36,600 --> 00:37:39,933
IT TAKES AN AVERAGE
OF 4 TRUCKLOADS TO FILL

583

00:37:40,033 --> 00:37:42,433
A JUMBO JET.

584

00:37:42,533 --> 00:37:44,466
AND IN TOTAL,

585

00:37:44,566 --> 00:37:47,933
AROUND A THOUSAND PLANES
WILL BE LEAVING HERE TODAY.

586

00:37:49,500 --> 00:37:52,233
PREPARING THE MEALS FOR MOST
OF THOSE FLIGHTS,

587
00:37:52,333 --> 00:37:55,200
THE WORLD'S BIGGEST FLIGHT
CATERING FACILITY.

588
00:37:57,266 --> 00:37:59,166
AND IN CHARGE OF IT ALL,

589
00:37:59,266 --> 00:38:02,533
CATERING SERVICES
VICE PRESIDENT DUNCAN DAVIS.

590
00:38:04,100 --> 00:38:08,000
DUNCAN: AT THE MOMENT, WE'RE
SUPPLYING 150,000 MEALS A DAY.

591
00:38:08,100 --> 00:38:10,833
WE HAVE JAPANESE CHEFS,
WE HAVE CHINESE CHEFS,

592
00:38:10,933 --> 00:38:12,833
WE HAVE INDIAN CHEFS,
WE HAVE ARABIC CHEFS,

593
00:38:12,933 --> 00:38:16,833
WE HAVE EUROPEAN CHEFS,
WESTERN CHEFS, MALAYSIAN,

594
00:38:16,933 --> 00:38:19,666
SO, REALLY, ANY TYPE
OF CUISINE WE CAN PRODUCE,

595
00:38:19,766 --> 00:38:22,166
AND IT'S A BIG VARIETY.

596
00:38:22,266 --> 00:38:24,366
[OVERLAPPING CHATTER]

597
00:38:25,933 --> 00:38:30,166
DUNCAN: THIS AREA HERE NOW IS
THE BUSINESS CLASS WORK CELL.

598
00:38:30,266 --> 00:38:32,666
UH, THE--THE LADY HERE
IS PREPARING A FLIGHT

599

00:38:32,766 --> 00:38:35,466
FOR AHMEDABAD, WHICH IS
LEAVING THIS EVENING,

600

00:38:35,566 --> 00:38:37,966
SO WE HAVE DIFFERENT
SPECIFICATIONS

601

00:38:38,066 --> 00:38:40,466
'CAUSE THERE'S DIFFERENT MENUS
FOR DIFFERENT FLIGHTS.

602

00:38:40,566 --> 00:38:44,133
WE ACTUALLY ARE RUNNING
1,543 MENUS

603

00:38:44,233 --> 00:38:47,366
AT THE MOMENT FOR EMIRATES,
AND THEY CHANGE EVERY MONTH,

604

00:38:47,466 --> 00:38:50,200
BUT THIS IS THE MENU
TODAY TO AHMEDABAD.

605

00:38:50,300 --> 00:38:53,000
THIS IS AN ARABIC MEAL CHOICE,
AND THIS IS THE WESTERN.

606

00:38:55,066 --> 00:38:57,966
NARRATOR: THE SHEER SCALE
ON WHICH THIS KITCHEN OPERATES

607

00:38:58,066 --> 00:39:01,100
REVEALS THE IMMENSE RESOURCES
AND EFFORTS

608

00:39:01,200 --> 00:39:03,633
THAT GO INTO MAKING
AIRLINE MEALS.

609

00:39:09,233 --> 00:39:11,633
NARRATOR: EXECUTIVE CHEF
BRUNO TROESCH

610

00:39:11,733 --> 00:39:14,866
IS IN CHARGE OF FOOD ORDERING.

611
00:39:55,200 --> 00:39:58,500
NARRATOR: 3 HOURS FROM NOW,
THIS BATCH WILL BE SERVED UP

612
00:39:58,600 --> 00:40:02,200
TO HUNGRY PASSENGERS
AT 30,000 FEET.

613
00:40:04,266 --> 00:40:06,333
IT'S A MONSTER OPERATION

614
00:40:06,433 --> 00:40:09,966
RUNNING 365 DAYS OF THE YEAR...

615
00:40:10,066 --> 00:40:13,500
A KITCHEN THAT NEVER SLEEPS.

616
00:40:15,066 --> 00:40:18,466
AND EVEN THOUGH DUBAI HANDLES
MORE INTERNATIONAL PASSENGERS

617
00:40:18,566 --> 00:40:20,466
THAN ANY OTHER AIRPORT,

618
00:40:20,566 --> 00:40:22,966
ALL THE FOOD THEY RUSTLE UP HERE

619
00:40:23,066 --> 00:40:25,066
AMOUNTS TO ONLY ABOUT 1%

620
00:40:25,166 --> 00:40:28,600
OF THE TOTAL
WE WOLF DOWN IN FLIGHT.

621
00:40:30,566 --> 00:40:33,900
AND YOU DON'T EVEN WANT TO THINK
ABOUT WASHING THE DISHES.

622
00:40:36,100 --> 00:40:39,333
LUCKILY FOR THEM, THEY'VE GOT
THE BIGGEST AND BUSIEST

623
00:40:39,433 --> 00:40:43,366
DISHWASHER FACILITY IN THE WORLD
TO HANDLE THE LOAD.

624

00:40:49,866 --> 00:40:52,433
SO, WITH THE FOOD ON-BOARD,
YOU'RE NOW READY.

625
00:40:52,533 --> 00:40:54,333
YOU'VE CHECKED IN.

626
00:40:54,433 --> 00:40:55,966
BAG DROPPED.

627
00:40:56,066 --> 00:40:58,466
PLANE FUELED AND GOOD TO GO.

628
00:40:58,566 --> 00:41:00,933
DEPARTURE IS IMMINENT.

629
00:41:02,500 --> 00:41:05,233
THIS DAILY BALLET
OF PREPARING PLANES FOR FLIGHT

630
00:41:05,333 --> 00:41:08,900
IS REPEATED MANY THOUSANDS
OF TIMES AROUND THE WORLD.

631
00:41:09,000 --> 00:41:11,400
WHATEVER THE CONDITIONS
IN WHICH WE TAKE OFF--

632
00:41:11,500 --> 00:41:13,400
RAIN, SUN, OR SNOW--

633
00:41:13,500 --> 00:41:16,400
IT ALL HAS TO WORK PERFECTLY.

634
00:41:16,500 --> 00:41:19,433
BUT IT'S HARDER IN SOME PLACES
THAN IN OTHERS.

635
00:41:20,966 --> 00:41:23,766
AND THIS PLACE--
YAKUTSK, SIBERIA--

636
00:41:23,866 --> 00:41:26,800
IS PERHAPS THE TOUGHEST
OF THEM ALL.

637
00:41:31,200 --> 00:41:34,333

THIS IS THE COLDEST CITY
ON EARTH,

638
00:41:34,433 --> 00:41:36,833
A REMOTE PLACE THAT'S SNOWBOUND

639
00:41:36,933 --> 00:41:39,333
FOR HALF THE YEAR.

640
00:41:39,433 --> 00:41:41,933
AVIATION IS ITS LIFELINE.

641
00:41:42,033 --> 00:41:45,166
KEEPING THE AIRPORT OPEN
IN THESE EXTREME CONDITIONS

642
00:41:45,266 --> 00:41:47,200
IS CRITICAL.

643
00:41:51,100 --> 00:41:54,533
TODAY, IT'S -53 DEGREES
FAHRENHEIT.

644
00:41:57,633 --> 00:41:59,533
NARRATOR: IT'S DOWN
TO ALEXEI FILYUSHIN

645
00:41:59,633 --> 00:42:02,766
AND HIS AIRPORT MAINTENANCE TEAM
TO KEEP THE PLANES FLYING

646
00:42:02,866 --> 00:42:05,766
IN THESE FREEZING CONDITIONS.

647
00:42:05,866 --> 00:42:07,300
9 A.M.,

648
00:42:07,400 --> 00:42:10,166
AND THE MORNING FLIGHT
FROM MOSCOW'S JUST LANDED.

649
00:42:35,433 --> 00:42:37,566
[WIND HOWLING]

650
00:42:37,666 --> 00:42:40,066
NARRATOR: IN THESE
FREEZING TEMPERATURES,

651
00:42:40,166 --> 00:42:43,933
ANY PLANE LANDING AT YAKUTSK
IS IN SERIOUS DANGER.

652
00:42:45,633 --> 00:42:47,533
WITHOUT PROTECTIVE CLOTHING,

653
00:42:47,633 --> 00:42:51,033
ANYBODY OUT HERE WOULD
QUICKLY GET HYPOTHERMIA,

654
00:42:51,133 --> 00:42:55,533
AND THIS PLANE IS
EVERY BIT AS VULNERABLE.

655
00:42:55,633 --> 00:42:59,033
UNLESS IT GETS IMMEDIATE
ENGINEERING FIRST AID,

656
00:42:59,133 --> 00:43:01,633
IT WON'T BE GOING ANYWHERE.

657
00:43:03,333 --> 00:43:07,266
THE FIRST THING THEY NEED
TO DEAL WITH ARE ITS WHEELS.

658
00:43:08,833 --> 00:43:11,400
THE PLANE'S RUBBER TIRES
WOULD SOON BECOME

659
00:43:11,500 --> 00:43:14,933
SO COLD AND BRITTLE,
THEY'D BE UNUSABLE.

660
00:43:18,500 --> 00:43:21,066
SO ALEXEI AND HIS ENGINEERS
MUST OPERATE

661
00:43:21,166 --> 00:43:24,600
LIKE AN E.R. CRASH TEAM...
FOR JETS.

662
00:43:41,500 --> 00:43:43,900
NARRATOR: THE PLANE'S BRAKES
ARE STILL HOT AFTER LANDING,

663

00:43:44,000 --> 00:43:46,566
AND WRAPPING THEM IN HEAVY-DUTY
INSULATING BLANKETS

664
00:43:46,666 --> 00:43:48,933
TRAPS THE RESIDUAL WARMTH.

665
00:43:50,400 --> 00:43:53,300
IT'S LIKE WRAPPING A HUMAN
IN A SURVIVAL BLANKET,

666
00:43:53,400 --> 00:43:56,900
USING THE BODY'S OWN HEAT
TO PREVENT HYPOTHERMIA.

667
00:44:03,900 --> 00:44:07,800
BUT PROTECTING THE TIRES
IS JUST THE FIRST STEP.

668
00:44:07,900 --> 00:44:11,133
THIS JET ALSO NEEDS
THE AVIATION EQUIVALENT

669
00:44:11,233 --> 00:44:13,166
OF HOT COCOA.

670
00:44:14,733 --> 00:44:17,233
ITS HUGE ENGINES ARE IN DANGER.

671
00:44:18,800 --> 00:44:22,033
THE OIL LUBRICATING THEM
AND OTHER KEY PARTS OF THE PLANE

672
00:44:22,133 --> 00:44:25,733
HAS A FREEZING TEMPERATURE
OF -40 DEGREES FAHRENHEIT.

673
00:44:27,800 --> 00:44:31,133
BELOW THAT,
IT STARTS TO SOLIDIFY,

674
00:44:31,233 --> 00:44:33,166
AND EVERYTHING BEGINS
TO SEIZE UP.

675
00:44:34,666 --> 00:44:38,066
AND TODAY, IT'S -53,

676
00:44:38,166 --> 00:44:40,066
SO FOR ALEXEI,

677
00:44:40,166 --> 00:44:42,600
TIMING IS CRITICAL.

678
00:45:40,500 --> 00:45:42,400
NARRATOR: AT 150 DEGREES,

679
00:45:42,500 --> 00:45:44,900
THE HOT AIR KEEPS
THE OIL FLOWING

680
00:45:45,000 --> 00:45:47,433
AND STOPS THE ENGINES
SEIZING UP.

681
00:45:49,700 --> 00:45:53,600
IT'S NOW BEEN 45 MINUTES
SINCE THE PLANE LANDED,

682
00:45:53,700 --> 00:45:56,200
AND WHILE ALEXEI'S TEAM
HAVE BEEN HARD AT WORK,

683
00:45:56,300 --> 00:45:58,966
A NEW LOAD OF PASSENGERS
HAVE BOARDED.

684
00:45:59,066 --> 00:46:01,466
[MAN SHOUTS IN RUSSIAN]

685
00:46:01,566 --> 00:46:05,600
NARRATOR: FLIGHT 137 FOR MOSCOW
IS NEARLY READY FOR DEPARTURE.

686
00:46:05,700 --> 00:46:07,833
[SPEAKING RUSSIAN]

687
00:46:09,233 --> 00:46:11,133
NARRATOR:
AT THE VERY LAST MOMENT,

688
00:46:11,233 --> 00:46:14,000
ALEXEI STRIPS AWAY
THE HEATERS AND BLANKETS.

689

00:46:15,566 --> 00:46:17,800

NOW THE PLANE'S GOT
JUST TEN MINUTES

690

00:46:17,900 --> 00:46:21,033

TO GET OFF THE GROUND BEFORE IT
STARTS TO FREEZE UP AGAIN.

691

00:46:24,633 --> 00:46:26,733

IT'S 10 A.M.

692

00:46:26,833 --> 00:46:28,733

IT PULLS BACK FROM THE GATE,

693

00:46:28,833 --> 00:46:31,033

AND SURE ENOUGH,
RIGHT ON TIME,

694

00:46:31,133 --> 00:46:33,533

IT BARRELS DOWN THE RUNWAY.

695

00:46:33,633 --> 00:46:37,066

ONE PLANE, SAFELY AIRBORNE.

696

00:46:40,633 --> 00:46:43,033

ONLY ANOTHER 34 FLIGHTS

697

00:46:43,133 --> 00:46:46,200

FOR ALEXEI AND HIS TEAM
TO TACKLE TODAY...

698

00:46:47,600 --> 00:46:52,033

SAME AS EVERY DAY,
OF THE COLDEST WINTER MONTHS.

699

00:46:54,600 --> 00:46:57,000

AS THE GLOBAL AVIATION
NETWORK REACHES OUT

700

00:46:57,100 --> 00:46:59,633

TO EVERY REMOTE CORNER
OF THE PLANET,

701

00:46:59,733 --> 00:47:03,200

TAKEOFFS IN EXTREME CONDITIONS
ARE BECOMING EVER MORE COMMON,

702
00:47:03,300 --> 00:47:05,200
WHETHER IN SIBERIA

703
00:47:05,300 --> 00:47:08,266
OR THE ISOLATED
ALASKAN WILDERNESS.

704
00:47:11,333 --> 00:47:16,266
THE CITY IN THE SKY HAS NOW
TRANSFORMED OUR WAY OF LIFE.

705
00:47:19,333 --> 00:47:23,766
ONCE-INACCESSIBLE OUTPOSTS
ARE NOW JUST A FLIGHT AWAY.

706
00:47:25,833 --> 00:47:29,766
WE CAN TRAVEL ANYWHERE WE WANT
IN A MATTER OF HOURS.

707
00:47:32,333 --> 00:47:34,733
BUT WHEREVER WE'RE
DEPARTING FROM,

708
00:47:34,833 --> 00:47:37,500
AND WHEREVER WE'RE HEADING TO,

709
00:47:37,600 --> 00:47:40,333
WE'VE STILL GOT TO GET AIRBORNE.

710
00:47:40,433 --> 00:47:42,766
[MAN SPEAKS INDISTINCTLY
OVER RADIO]

711
00:47:42,866 --> 00:47:46,433
NARRATOR: IT ALL COMES DOWN
TO THIS VITAL MOMENT,

712
00:47:46,533 --> 00:47:49,433
THE POINT AT WHICH YOUR PLANE
PULLS BACK FROM THE GATE

713
00:47:49,533 --> 00:47:52,433
AND PREPARES TO HURTLE
DOWN THE RUNWAY.

714
00:47:52,533 --> 00:47:54,933
SO, [INDISTINCT].

715

00:47:55,033 --> 00:47:57,000

NARRATOR: CAPTAIN

JOACHIM SCHWARZENBERG

716

00:47:57,100 --> 00:48:00,866

IS ONE OF THE MOST EXPERIENCED
A380 PILOTS IN THE WORLD...

717

00:48:02,566 --> 00:48:05,500

AND HE'S JUST MINUTES AWAY
FROM TAKEOFF.

718

00:48:07,866 --> 00:48:10,600

CAPTAIN: WE HAVE TO
START CHECKLISTS.

719

00:48:13,100 --> 00:48:15,000

LUFTHANSA 760 IS
CLEARED FOR TAKEOFF.

720

00:48:15,100 --> 00:48:16,833

[INDISTINCT]

READY.

721

00:48:16,933 --> 00:48:20,333

NARRATOR: IT'S EASY TO TAKE
THIS MOMENT FOR GRANTED,

722

00:48:20,433 --> 00:48:24,866

BUT EVERY TAKEOFF IS AN ACT
OF GRAVITY-DEFYING BRILLIANCE.

723

00:48:26,033 --> 00:48:28,366

READY?

YES, SIR.

724

00:48:28,466 --> 00:48:30,366

TAKEOFF.

725

00:48:30,466 --> 00:48:33,866

NARRATOR: IT STARTS WITH
THE AIRCRAFT BUILDING UP SPEED.

726

00:48:33,966 --> 00:48:36,000

STABILIZED.

727

00:48:40,233 --> 00:48:42,433
100 KNOTS.
CHECK.

728
00:48:42,533 --> 00:48:45,433
NARRATOR: CAPTAIN JO NEEDS
TO GET HIS 500-TON PLANE

729
00:48:45,533 --> 00:48:48,433
TO AROUND 165 MILES PER HOUR

730
00:48:48,533 --> 00:48:50,966
IN THE NEXT 6 SECONDS.

731
00:48:52,533 --> 00:48:54,600
HE PUSHES THE THROTTLE
LEVER FORWARD,

732
00:48:54,700 --> 00:48:58,200
AND HIS 4 MASSIVE ENGINES
SPRING TO LIFE.

733
00:49:00,266 --> 00:49:02,733
THEY'RE SUCKING
HUGE VOLUMES OF AIR

734
00:49:02,833 --> 00:49:05,233
THROUGH THEIR TURBINE BLADES,
COMPRESSING IT

735
00:49:05,333 --> 00:49:08,466
BEFORE IT MIXES
WITH JET FUEL AND IGNITES.

736
00:49:10,033 --> 00:49:13,233
THE RESULT--
THRUST BLASTING OUT THE BACK,

737
00:49:13,333 --> 00:49:16,900
THE FORCE THAT PUSHES
THE PLANE FORWARD.

738
00:49:18,466 --> 00:49:21,966
WITHIN A FEW SECONDS,
THIS FORCE POWERS THE AIRCRAFT

739
00:49:22,066 --> 00:49:24,166
TO ITS OPTIMAL TAKEOFF SPEED--

740
00:49:24,266 --> 00:49:26,666
165 MILES PER HOUR--

741
00:49:26,766 --> 00:49:29,700
VELOCITY ONE, OR V1.

742
00:49:31,366 --> 00:49:33,300
AUTOMATED VOICE: V1.

743
00:49:35,133 --> 00:49:36,700
NARRATOR: AS THE PLANE
ACCELERATES,

744
00:49:36,800 --> 00:49:39,200
THIS HUGE INCREASE
IN SPEED HAS ALL THE WHILE

745
00:49:39,300 --> 00:49:41,533
BEEN GENERATING A STREAM OF AIR

746
00:49:41,633 --> 00:49:43,533
MOVING AROUND THE WING.

747
00:49:45,100 --> 00:49:48,500
THIS AIRFLOW CREATES
AN EFFECT CALLED LIFT,

748
00:49:48,600 --> 00:49:51,000
AND THE FASTER
THE AIRCRAFT GOES,

749
00:49:51,100 --> 00:49:53,400
THE MORE LIFT IT GENERATES.

750
00:49:55,966 --> 00:49:59,533
THEN, AT JUST OVER
165 MILES PER HOUR,

751
00:49:59,633 --> 00:50:03,333
CAPTAIN JO REACHES TAKEOFF'S
MOST CRITICAL POINT.

752
00:50:04,900 --> 00:50:07,133
HE PULLS BACK ON THE SIDE STICK,

753

00:50:07,233 --> 00:50:09,133
ADJUSTING THE POSITION
OF THE ELEVATORS

754
00:50:09,233 --> 00:50:13,166
70 METERS BEHIND THE COCKPIT
ON THE AIRCRAFT'S TAIL.

755
00:50:14,733 --> 00:50:17,166
IT'S CALLED ROTATION.

756
00:50:20,500 --> 00:50:24,900
ROTATION USES THE ELEVATORS
TO FORCE THE PLANE'S NOSE UP.

757
00:50:26,466 --> 00:50:28,666
BY ALTERING
THE AIRCRAFT'S ANGLE,

758
00:50:28,766 --> 00:50:31,100
MUCH MORE OF THE AIR
FLOWING AROUND THE WING

759
00:50:31,200 --> 00:50:32,900
IS FORCED DOWNWARDS,

760
00:50:33,000 --> 00:50:35,833
SO THE PLANE'S LIFT
IS GREATLY ENHANCED.

761
00:50:37,400 --> 00:50:39,300
WITHIN A SECOND OR TWO,

762
00:50:39,400 --> 00:50:42,800
THIS ALLOWS IT TO EFFORTLESSLY
LEAVE THE GROUND.

763
00:50:48,166 --> 00:50:49,566
AND WITH THAT,

764
00:50:49,666 --> 00:50:51,733
ANOTHER 500 PASSENGERS
HAVE JOINED

765
00:50:51,833 --> 00:50:53,966
THE CITY IN THE SKY.

766

00:50:56,533 --> 00:50:59,233
TAKEOFFS LIKE THIS ARE
CARRIED OUT ALL OVER THE WORLD

767
00:50:59,333 --> 00:51:01,333
THOUSANDS OF TIMES A DAY.

768
00:51:04,400 --> 00:51:08,300
WHETHER YOU'RE DEPARTING
FROM L.A. OR NEW YORK,

769
00:51:08,400 --> 00:51:10,500
OR HURLING DOWN THE RUNWAY

770
00:51:10,600 --> 00:51:13,933
IN THE FROZEN EXTREMES
OF YAKUTSK...

771
00:51:15,500 --> 00:51:18,400
YOU'RE FINALLY UP IN THE AIR.

772
00:51:18,500 --> 00:51:21,233
OVER THE NEXT FEW HOURS,
YOU MIGHT HAVE A FEW DRINKS

773
00:51:21,333 --> 00:51:23,733
OR WATCH AN IN-FLIGHT MOVIE,

774
00:51:23,833 --> 00:51:26,733
BUT WHILE YOU'RE
SITTING THERE RELAXING,

775
00:51:26,833 --> 00:51:29,233
THERE'S A LOT MORE GOING ON
BEHIND THE SCENES

776
00:51:29,333 --> 00:51:32,366
THAN YOU MIGHT EXPECT,

777
00:51:32,466 --> 00:51:35,533
FOR YOU ARE ENTERING
THE MOST ALIEN ENVIRONMENT

778
00:51:35,633 --> 00:51:37,533
ON THE PLANET,

779
00:51:37,633 --> 00:51:40,033

A PLACE WITH THIN AIR,

780

00:51:40,133 --> 00:51:43,700

SAVAGE WINDS,
AND FREEZING TEMPERATURES.

781

00:51:43,800 --> 00:51:48,200

FLIGHT IS A REMARKABLE
ACHIEVEMENT,

782

00:51:48,300 --> 00:51:51,700

AND YOUR PLANE IS ONE
OF AROUND 100,000

783

00:51:51,800 --> 00:51:54,200

TAKING TO THE SKIES
ACROSS THE WORLD

784

00:51:54,300 --> 00:51:56,233

EVERY SINGLE DAY.

785

00:51:57,733 --> 00:52:00,933

THE JOURNEY'S ONLY JUST BEGUN.

786

00:52:01,500 --> 00:52:01,500

Narrator: You're airborne.

787

00:52:01,500 --> 00:52:02,866

Narrator: You're airborne.

788

00:52:02,966 --> 00:52:05,333

Narrator: You're airborne.

789

00:52:05,433 --> 00:52:06,566

Narrator: You're airborne.

790

00:52:06,666 --> 00:52:08,933

Narrator: You're airborne.

791

00:52:09,033 --> 00:52:10,500

Narrator: You're airborne.

792

00:52:10,600 --> 00:52:12,833

Narrator: You're airborne.

793

00:52:12,933 --> 00:52:14,033

Narrator: You're airborne.

794

00:52:14,133 --> 00:52:16,000

Narrator: You're airborne.

795

00:52:16,100 --> 00:52:18,466

Narrator: You're airborne.

796

00:52:18,566 --> 00:52:20,366

Narrator: You're airborne.

797

00:52:20,466 --> 00:52:21,933

Narrator: You're airborne.

798

00:52:22,033 --> 00:52:24,366

Narrator: You're airborne.

799

00:52:24,466 --> 00:52:35,366

Narrator: You're airborne.

800

00:52:35,466 --> 00:52:38,366

Narrator: You're airborne.

801

00:52:38,466 --> 00:52:40,700

Narrator: You're airborne.

802

00:52:40,800 --> 00:52:43,466

Narrator: You're airborne.